## REMARKS

Claims 1, 4-6, 8, 9, 16, 18, 19, 21-25 and 27 are pending in the application. Applicants have amended claim 21 to correct a minor typographical error. No new matter has been added.

**Rejection Under 35 U.S.C. § 101**

Claims 1, 4-6, 8, 9, 16, 18, 19, 21-25 and 27 were rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Applicants respectfully traverse this rejection.

The Court of Appeals for the Federal Circuit recently clarified the law regarding patent eligible subject matter for process claims. *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc). The court in *Bilski* held that "the machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101." *Id.* at 956. The court in *Bilski* further held that "the 'useful, concrete and tangible result' inquiry is inadequate [to determine whether a claim is patent-eligible under § 101.]" *Id.* at 960. Thus, the reliance in the Action, e.g, paragraph 1 of the Action, on tests - in particular, the "useful, concrete and tangible result" test - other than the test announced in *Bilski* is incorrect as a matter of law and the rejection of claims 1, 4-6, 8, 9, 16, 21-25 and 27 should be withdrawn for at least this reason.

The court in *Bilski* explained the machine-or-transformation test as follows:

> The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article. *See Benson*, 409 U.S. at 70, 93 S. Ct. 253. Certain considerations are applicable to analysis under either branch. First, as illustrated by *Benson* and discussed below, the use of

> a specific machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility. *See Benson*, 409 U.S. at 71-72, 93 S. Ct. 253. Second, the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity. *See Flook*, 437 U.S. at 590, 98 S. Ct. 2522.
>
> *Id.* at 961-62.

The court declined to decide under the machine implementation branch of the inquiry what minimum recitation of a computer suffices to tie a process claim to a particular machine. As to the transformation branch of the inquiry, however, the court explained that transformation of a particular article into a different state or thing "must be central to the purpose of the claimed process." *Id.* at 962. As to the meaning of "article," the court explained that chemical or physical transformation of physical objects or substances is patent-eligible under § 101, and also that the raw materials of many information-age process are electronic signals and electronically manipulated data. *Id.*

The court explained that transformation of data is sufficient to render a process patent-eligible if the data represents physical and tangible objects, i.e., transformation of such raw data into a particular visual depiction of a physical object on a display. *Id.* at 963. The court further noted that transformation of data can be insufficient to render a process patent-eligible, for example, if the data does not specify any particular type or nature of data and does not specify how or where the data was obtained or what the data represented. *Id.* at 962 (citing *In re Abele*, 684 F.2d 902, 909 (CCPA 1982) (process claim of graphically displaying variances of data from average values is not patent-eligible) and *In re Meyer*, 688 F.2d 789, 792-93 (CCPA 1982) (process claim involving undefined "complex system" and indeterminate "factors" drawn from unspecified "testing" is not patent-eligible)).

For clarity, the court noted that "the electronic transformation of the data itself into a visual depiction in *Abele* was sufficient; the claim was not required to involve any transformation of the underlying physical object that the data represented. *Id.* at 963. Further, "[s]o long as the claimed process is limited to a practical application of a fundamental principle to transform specific data, and the claim is limited to a visual depiction that represents specific physical objects or substances, there is no danger that the scope of the claim would wholly pre-empt all uses of the principle. *Id.*

Representative claim 1 recites a method for processing a media signal to transform the media signal on a computer system. Claim 5 recites, *inter alia*, a vector processing computer system. Thus, the recited methods are explicitly tied to particular machines. Similar recitations are found in the remaining independent method claims. Accordingly, having met the machine implementation branch of *Bilski*, Applicants respectfully submit that the 35 U.S.C. § 101 rejection should be withdrawn for at least this reason.

The method of claim 1 includes using a Chebyshev minimax approximation technique to determine a plurality of polynomials which approximate a mathematical function over a plurality of corresponding data intervals, wherein the length of each interval is individually defined so that the approximation of the function over that interval by its corresponding polynomial has an error less than a predetermined threshold for all of the intervals, storing the coefficients that define each polynomial.

In response to receipt of the media signal, the method determines the interval in which a data value representative of the media signal is located, and retrieves the stored coefficients for the polynomial corresponding to that interval. The method

evaluates the polynomial for the determined interval with the media signal and the retrieved coefficients to thereby transform the media signal.

The method outputs the transformed media signal to reproduce the transformed media signal as an output from the computer system, wherein the polynomials and intervals are determined such that the maximum error between the output values and the function is approximately equal for each of the intervals.

As disclosed on page 1 of Applicants' specification, power functions can be computed and applied to data being processed to correct, for example, the gamma of display devices, such as CRT monitors and LCD screens. Data to be processed can also include, for example, data contained in audio files in the MPEG3 and MPEG4 formats. Thus, the data values representative of the media signals processed (transformed) in the claims represent something "physical and tangible," e.g., data representing sounds and images of objects.

Moreover, since the claimed embodiments are limited to a practical application - for example, correcting the gamma of display devices - of a fundamental principle to transform specific data - for example, audio and video data - and the claims are limited to an audiovisual output depiction that represents physical objects or substances, there is no danger that the scope of the claims would wholly pre-empt all uses of the principle.

Additionally, the exemplary disclosed embodiments of the claimed computer-readable medium (claim 21) refer only to tangible storage media, e.g., memory 16 and registers 20, 22, 24, 26, 28 and 30.

Accordingly, since claims 1, 5, 16, and 21 satisfy the *Bilski* and *Abele* criteria for patent-eligible subject matter as discussed above, the 35 U.S.C. § 101 rejection

should be withdrawn. This logic also disposes of the rejection of independent claim 18, as well as claims 4, 6, 8-9, 19, 21-25 and 27, which depend from claims 1, 5, 18 and 21.

**Rejection Under 35 U.S.C. § 103**

Claims 18 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Betrisey U.S. Patent No. 6,360,023 and Hurley U.S. Patent No. 5,235,410. Applicants respectfully traverse this rejection.

Claim 18 recites a method for processing an image for display in a computer system. The method includes receiving an input display value for a pixel of the image in a first color space and generating a corrected display value in a second color space by evaluating a second-order polynomial that approximates a power function corresponding to the gamma of a display device, in accordance with the input display value. The method further includes processing the corrected display value in the second color space to produce a processed display value for the pixel and converting the processed display value to the first color space by evaluating a polynomial that is the inverse of the second-order polynomial in accordance with the processed display value. The second-order polynomial that approximates a power function and its inverse are such that the evaluating of a polynomial that is the inverse of the second-order polynomial yields an error that is below a prescribed threshold value.

Applicants respectfully submit that this same combination of elements is neither disclosed nor suggested by Betrisey and Hurley. For example, the Action admits that Betrisey does not disclose the "generating a corrected display value in a

second color space by evaluating a second-order polynomial that approximates a power function corresponding to the gamma of a display device, in accordance with said input display value" and "converting said processed display value to said first color space by evaluating a polynomial that is the inverse of said second-order polynomial in accordance with said processed display value, wherein the second-order polynomial that approximates a power function and its inverse are such that said evaluating of a polynomial that is the inverse of said second-order polynomial yields an error that is below a prescribed threshold value." Here, the Action looks to Hurley for support.

Hurley's Fig. 6, which is cited for disclosing the claimed features missing from Betrisey, is a graph that merely shows modeling of a desired non-linear operation, e.g., a gamma correction, by a quadratic approximation. Hurley is devoid of any teaching or suggestion of an inverse of a second-order polynomial that approximates a power function. Hurley similarly fails to disclose that claimed evaluation of the inverse of the second-order polynomial to yield an error that is below a prescribed threshold value.

For any of these reasons, the aforementioned features of independent claim 18 cannot reasonably be said to be present in the asserted combination. The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103, despite any recent revision to the Manual of Patent Examining Procedure (MPEP).

Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render claim 18 unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim.

Instead, the asserted combination of the patents to Betrisey and Hurley must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeals and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original).

Further, the necessary presence of all claim features is axiomatic, since the Supreme Court has long held that obviousness is a question of law based on underlying factual inquiries, including ascertaining the differences between *the claimed invention* and the prior art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) (emphasis added). Indeed, Applicants submit that this is why Section 904 of the MPEP instructs Examiners to conduct an art search that covers "the invention *as described and claimed*." (emphasis added). Lastly, Applicants respectfully invite the Examiner's attention to MPEP § 2143, the instructions of which buttress the conclusion that obviousness requires at least a suggestion of all of the features of a claim, since the Supreme Court in *KSR Int'l v. Teleflex Inc.* stated that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (*quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

In sum, it remains well-settled law that obviousness requires at least a suggestion of all of the features in a claim. *See In re Wada and Murphy*, *citing*

*CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) and *In re Royka*, 490 F.2d 981, 985 (CCPA 1974)).

Furthermore, Hurley is directed to non-linear processing of a digital signal in which a non-linear transformation of the digital signal can be effected without generating undesired harmonics in the form of alias components. See Hurley, col. 2, lines 54-58. Thus, a person of ordinary skill in the art would have no reason to combine Hurley with Betrisey to arrive at the claimed combination that provides a technique for calculating power functions that eliminates the need to retrieve values from a large table of data and can be implemented within a vector processing engine, thus eliminating inefficiencies associated with scalar operations. See Applicants' specification at page 3. The Action has not articulated, for instance, that each element of the applied references performs the same function when combined as it would separately; that one of ordinary skill in the art could have combined the applied references and that the result of the purported combination would have been recognized as predictable by one of ordinary skill in the art. MPEP § 2142.

Therefore, the Action has failed to establish a *prima facie* case for rejecting Applicants' claims under 35 U.S.C. § 103(a).

Accordingly, it is respectfully submitted that Hurley with Betrisey do not disclose or suggest the subject matter of claim 18 to a person of ordinary skill in the art. For at least these same reasons, the subject matter of dependent claim 19, which recites additional distinguishing features, is also submitted to be patentably distinct from the disclosures of the references.

**Conclusion**

For the foregoing reasons, Applicants respectfully submit that this application is in immediate condition for allowance and all pending claims are patentably distinct from the cited references. Reconsideration and allowance of all pending claims are respectfully requested.

In the event that there are any questions about this application, the Examiner is requested to telephone Applicants' undersigned representative so that prosecution of the application may be expedited.

If additional fees are required for any reason, please charge Deposit Account No. 02-4800 the necessary amount.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: March 17, 2008

By: /Brian N. Fletcher/
Brian N. Fletcher
Registration No. 51683

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620

Customer No. 21839